

having narrow line width) do not exist as minimum as possible. By transferring the reduced images of such a plurality of divided partial parent patterns having different shapes while stitching screens, it is possible to largely reduce the number of joint portions (pattern astride two short regions) on the substrate. Therefore, it is possible to enhance the production precision of the phase-shift reticle WR1 and the correction exposure reticle WR2 as the working reticles.

Changes to Claims:

Please replace claims 1-18 as follows:

1. (Amended) A producing method of a mask which produces a phase-shift mask and a correction exposure mask used when a transmission image of a pattern of the phase-shift mask is corrected by superimposing exposure, comprising:

forming a parent pattern on a first substrate to form a master mask;

transferring the parent pattern of the master mask onto a second substrate under a first condition, and forming a predetermined phase shift portion on the second substrate, thereby forming the phase-shift mask; and

transferring the parent pattern of the master mask onto a third substrate under a second condition which is different from the first condition, thereby forming the correction exposure mask.

2. (Amended) A producing method of a mask as recited in claim 1, wherein the second condition is a condition wherein an amount of exposure is smaller than that in the first condition.

3. (Amended) A producing method of a mask as recited in claim 1, wherein under the first condition, the parent pattern of the master mask is transferred onto the second substrate through a first projection optical system having a predetermined first resolution, and

under the second condition, the parent pattern of the master mask is transferred onto the third substrate through a second projection optical system having a second resolution lower than the first resolution.

4. (Amended) A producing method of a mask as recited in claim 3, wherein the numerical aperture of the second projection optical system used under the second condition is set smaller than the numerical aperture of the first projection optical system used under the first condition.

5. (Amended) A producing method of a mask as recited in claim 1, wherein under the second condition, the third substrate is defocused with respect to an image plane of the projection optical system.

6. (Amended) A producing method of a mask as recited in claim 1, wherein the parent pattern is divided into the plural number to form a plurality of master masks, and patterns of the plurality of the master masks are transferred while stitching screens, thereby forming patterns respectively corresponding to the parent pattern on the second and third substrates.

7. (Amended) A producing method of a mask which produces a correction exposure mask used when a transmission image of a pattern of a predetermined phase-shift mask is corrected by superimposing exposure, comprising:

forming a parent pattern on a first substrate to produce a master mask; and
transferring the parent pattern of the master mask onto a second substrate under a condition different from a condition under which a light shield pattern of the phase-shift mask is formed, thereby forming the correction exposure mask.

8. (Amended) A producing method of a mask as recited in claim 7, wherein the condition includes at least one of an exposure amount, a resolution, and focus.

9. (Amended) A producing apparatus of a mask which produces a plurality kinds of masks different from one another, comprising:

a mask stage which holds a master mask on which a parent pattern is formed;
a substrate stage which sequentially holds and positions a plurality of mask
substrates for the masks;
an illumination optical system which illuminates the master masks on the mask
stage;
a projection optical system which transfers an image of the parent pattern of the
master mask onto the mask substrate on the substrate stage; and
a control system which adjusts at least one of an exposure amount with respect to the
mask substrate and a resolution of the projection optical system in accordance with kinds of
the mask to be produced.

10. (Amended) A producing method of a predetermined device, comprising:

drawing a parent pattern corresponding to a pattern of a predetermined layer of the
device onto one or a plurality of first substrates to form a master mask;

transferring the parent pattern of the master mask onto a second substrate under a
first condition and forming a predetermined phase-shift portion on the second substrate,
thereby forming a phase-shift mask;

transferring the parent pattern of the master mask onto a third substrate under a
second condition which is different from the first condition, thereby forming a correction
exposure mask; and

exposing in a superimposing manner the pattern of the phase-shift mask and the
pattern of the correction exposure mask on a fourth substrate.

11. (Amended) A photomask produced using the mask producing method as
recited in claim 1.

12. (Amended) A producing method of a device, comprising: transferring a device
pattern onto a device substrate using the mask as recited in claim 11.

13. (Amended) A photomask produced using the mask producing apparatus as recited in claim 9.

14. (Amended) A producing method of a mask used for double exposure of a photosensitive substrate, comprising: transferring a parent pattern of a master mask onto a first substrate to produce a first mask used for one exposure of the double exposure, and transferring the parent pattern of the master mask onto a second substrate to produce a second mask used for the other exposure of the double exposure, wherein a condition under which the parent pattern of the master mask is transferred to produce the first mask and a condition under which the parent pattern of the master mask is transferred to produce the second mask are different from each other.

15. (Amended) A producing method of a mask as recited in claim 14, wherein a parent pattern of a second master mask different from the master mask is transferred onto the first substrate to form a phase-shift portion in the first mask.

16. (Amended) A producing method of a mask as recited in claim 15, wherein the first mask is a mask for enhancing resolution, and the second mask is a mask for defining a shape.

17. (Amended) A producing method of a mask as recited in claim 14, wherein an optical exposure apparatus which reduces and projects the parent pattern of the master mask is used when the first and second masks are produced.

18. (Amended) A producing method of a mask used for double exposure of a photosensitive substrate, wherein a master mask used when a first mask is produced using one exposure of the double exposure is used when a second mask used for the other exposure of the double exposure is produced, and a condition under which a parent pattern of the master mask is transferred for the second mask is different from a condition for the first mask.